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Polyaspis berlesei, a New Species of Trachytoid Mite (Mesostigmata: Polyaspidae).

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In a recent paper (Camin, 1953) it was pointed out that Berlese's description of *Polyaspis patavinus* (1881), the type species of the genus *Polyaspis*, was based on at least two different species of closely related mites. In a later amplification of his original description, Berlese (1882) included figures of two quite different genital areas (reproduced here, Figs. 1 and 2).

In her studies of the type species of the Berlese genera of Mesostigmata at Florence, Italy, Dr. Flora E. Gorirossi drew the genital region of the holotype specimen of *P. patavinus*. This drawing (Fig. 3) has revealed which of the two species figured by Berlese is actually *P. patavinus* (Fig. 1). His second drawing (Fig. 2) of an epigynial shield and the surrounding area, along with most of the remaining figures, appears to be from another species, as yet unnamed.

Two slide preparations of polyaspid mites were recently loaned to me by Dr. Edward W. Baker of the United States National Museum.

One of these, with two female specimens, bore the following data : "In soil with *Lilium* sp. bulb ; Portugal-Quarantine at Boston ; March 10, 1953 ; J. D. Crump, Jr., collector." The other, with three female specimens, had the following data: "In soil with chicory roots ; Egypt-Quarantine at Philadelphia ; October 22, 1953 ; J. Freedland, collector." A thorough study of these five mites has revealed that they are all members of a single species. The genital area of this species (Fig. 4) compares favorably with that of Berlese's unnamed form (Fig. 2). Berlese's drawing is lacking in detail and the metasternal shields and setae were

apparently omitted, but these are often partially hidden by the posterior corners of the epigynial shield. The positions of the setae shown in Berlese's figure, the shape of the perigenital rim and of the ventral shield, and the thickening of the anterior margin of the epigynial shield are almost identical with the Portugal-Egypt specimens. Judging from the similarity of these forms and from the fact that this species apparently ranges at least from Portugal to Egypt, it is very probable that these specimens belong to the same species that Berlese collected in Italy. For this reason the species herein described is named after Antonio Berlese, who probably first figured it in 1882, although he failed to recognize it as distinct from his *P. patavinus*.

***Polyaspis berleseii* new species**

Adult Female. Body averaging 705 x 480 μ ., dark brown, rough, fimbriate anteriorly; boat-shaped in life; vertex projecting to a point anteriorly; posterior end truncate or slightly rounded; flat or slightly concave dorsally; convex ventrally; anus on a rudder-like projection; peritremes short, projecting laterally. Some critical measurements are presented in Table I.

Venter, Figure 5. STERNAL SHIELD fused with endopodals; extending laterally around epigynial shield and coxae IV to fuse with parapodal, metapodal, and peritremal plates; with rough, areolate margins; perigenital rim, a raised crescentic portion of the sternal shield, extending from posterior margins of coxae II around genital aperture to fuse with remnant of ventral shield posteriorly. STERNAL SETAE I of moderate length on raised mound near anterior margin of sternal shield between coxae I and II, sternal pores I on this mound slightly behind sternal setae I; sternal setae II somewhat shorter than setae I, located on anterior margin of perigenital rim, pores II not observed; sternal setae III equal in length to setae II, on anterior portion of rim nearer genital aperture, often hidden by anterior margin of epigynial shield; pseudosternal setae approximately the same length as II and III, on lateral extensions of perigenital rim, frequently covered by corners of epigynial shield; metasternal setae equal in length to pseudosternals, on minute, free metasternal shields opposite posterior corners of epigynial shield, accompanied by a pair of round pores, not sternal pores III; sternal pores III, lyriiform fissures, located on posterolateral margins of epigynial shield. Distance from sternal setae I to setae II greater than twice the distance from II to III; pseudosternals approximately equidistant between setae III and metasternal setae; horizontal distance between sternal setae I and between III approximately equal and twice

the distance between setae II. EPIGYNIAL SHIELD located between middle of coxae III and middle of coxae IV ; free anteriorly and laterally, hinged posteriorly because of thickness and texture, but actually continuous with remnant of ventral shield ; square with rounded corners ;

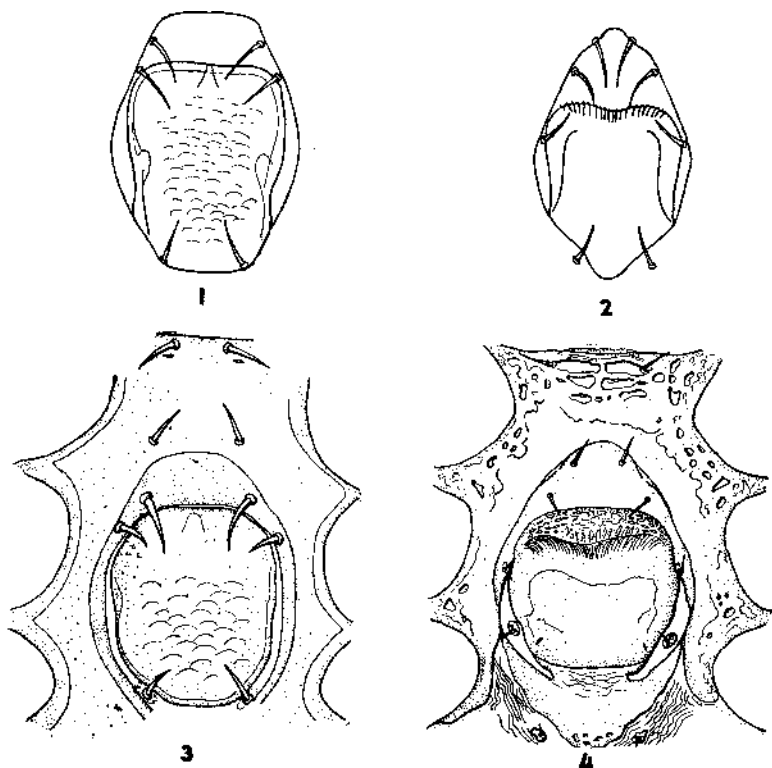


Figure 1. Genital region of *Polyaspis patavinus* (after Berlese).

Figure 2. Genital region of the second species of *Polyaspis* used by Berlese in his description of *P. patavinus* (after Berlese).

Figure 3. Sterni-genital region of the holotype specimen of *Polyaspis patavinus* (drawing by Gorirossi).

Figure 4. Sterni-genital region of *Polyaspis berleseii* n. sp.

anterior margin very thick and heavily sclerotized. MEDIAN SHIELD present on dorsal wall of vagina, visible only after removal of epigynial shield, covering anterior half of genital aperture ; posterior margin with

irregular group of round pores with slit-like openings. METAPODAL SHIELDS areolate, very large, roughly oblong in shape; anterolateral

Table I. *P. berlesei*, Measurements* of the Female

Part measured	<i>n</i>	\bar{x}	<i>s</i>	Range observed
Body:				
length	5	705.1 μ	27.8 μ	677.1 - 745.2 μ
width	5	480.1	20.3	460.0 - 501.4
Sternal shield:				
length to genital aperture	5	121.9	3.2	118.8 - 126.3
length of perigenital rim	5	53.3	5.0	49.9 - 62.0
Epigynial shield:				
length	5	125.6	5.3	119.5 - 134.0
width	5	123.0	5.4	117.0 - 129.6
Distance between sternal setae:				
I - II	5	71.9	3.0	68.9 - 76.8
II - III	5	28.7	3.6	24.4 - 34.1
III - pseudosternal	5	51.8	1.8	49.1 - 53.9
pseudosternal - IV	5	48.3	2.5	46.2 - 52.6
I - I	5	68.2	3.7	64.7 - 73.3
II - II	5	37.7	0.5	37.2 - 38.5
III - III	5	76.4	3.9	72.6 - 81.4
Median dorsal shield:				
length	5	512.8	9.1	507.8 - 529.0
width	5	328.4	9.6	312.8 - 337.6
Posterior dorsal shield:				
length	5	50.2	3.4	46.2 - 53.9
width	5	139.8	7.5	130.9 - 148.5
Legs:				
I	5	446.9	15.2	432.4 - 472.0
II	5	433.1	16.4	415.8 - 457.2
III	5	374.3	14.5	361.6 - 395.6
IV	5	407.6	26.3	381.8 - 425.0
Corniculus:				
length	4	111.9	2.3	110.0 - 114.8
Chelicerae:				
fixed digit	4	116.9	1.4	115.1 - 118.1
movable digit	4	112.2	0.8	111.2 - 112.9

* *n* = number of specimens; \bar{x} = mean; *s* = standard deviation

corners fused with peritremal and parapodal plates; with two or three contiguous pores at anteromedial corners; each with a pair of large, leaf-like setae, one directly behind or slightly laterad to pores, the other in the center of the shield. ANAL SHIELD broad, areolate; with roughly triangular, rudder-like projection bearing anus, two pairs of small adanal

setae, and a larger, leaf-like postanal seta. VENTRAL SHIELD reduced, pitted, without setae. Ventral setae I short, on minute platelets between ventral shield and anteromedial corners of metapodal shields; ventral setae II, III and IV large, leaf-like, on small platelets in band of soft integument between anal and metapodal shields. TRITOSTERNUM with

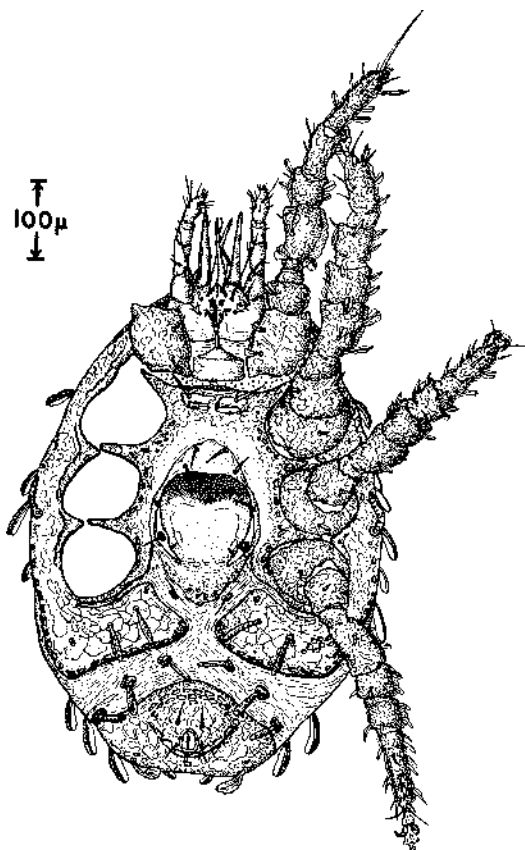


Figure 5. Ventral view of *Polyaspis berlesei* n. sp., female.

broad triangular or pentagonal base and a single three-branched, treelike lacina. PERITREMES short, recurved, extending from stigmata between coxae III and IV to middle of coxae III, on lateral projections from body.

Dorsum, Figure 6. Anterolateral margins rough, fimbriate. VERTEX with narrow anterior lamellae, with thickened central ribs, extending forward ; with broad, flat lamellae anterolaterally; lamellae projecting roof-like over retracted gnathosoma ; one pair of large; leaf-like vertical setae ; fused with dorsal extensions of peritremal plates and anterior margin of median dorsal shield. MEDIAN DORSAL SHIELD large, cover-

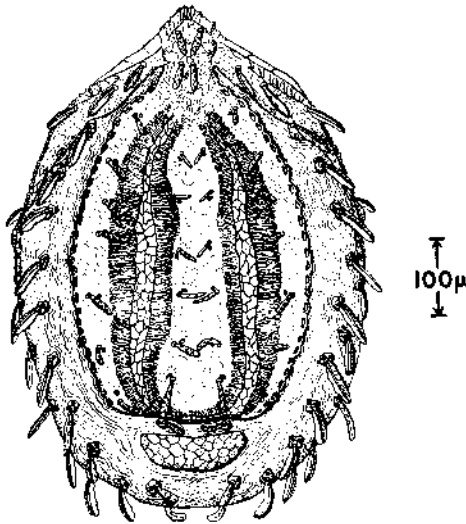
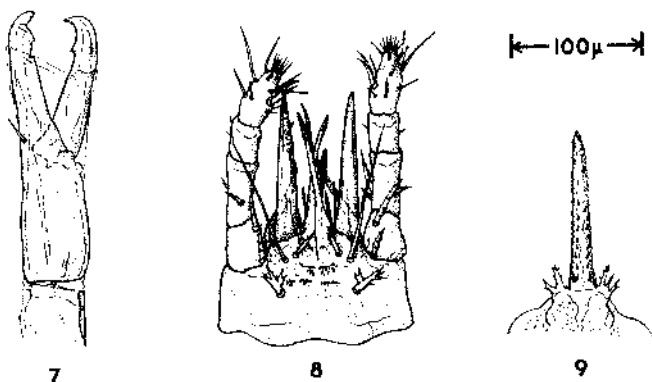


Figure 6. Dorsum of *Polyaspis berlesci* n. sp., female.

ing most of dorsum ; with longitudinal median furrow extending most of its length ; lateral margins scalloped ; edges of furrow with adherent, areolate and finely wrinkled, nymphal skins; a pair of large, leaf-like setae at anterior margin, directly behind vertical setae ; six pairs of small to moderately large club-like or leaf-like setae in furrow, progressively larger posteriorly, each with an associated pore ; seven pairs of moderately large club-like or leaf-like setae along lateral margins. A pair of leaf-like setae on small platelets in narrow band of soft integument between median dorsal and posterior dorsal shield. POSTERIOR DORSAL SHIELD small, crescentic, areolate ; less than one-tenth the length of median dorsal shield ; width two to three times length ; without setae. Usually with twelve pairs of large, leaf-like inner MARGINAL SETAE, the anterior two pairs on dorsal extensions of peritremal plates, remainder on independent platelets; with seven to nine pairs of outer marginal setae, large, leaf-like, anterior pair on peritremal plates, remainder on

individual platelets ; one pair of plume-like terminal setae. Soft integument with strong, sometimes jagged striations.

Gnathosoma, Figure 8. Gnathosomal base short and broad; gnathosomal setae short, spinose, with one short, thick branch; two pairs of combs of deutosternal teeth between gnathosomal setae and proximal hypostomal setae. Pedipalps only four-segmented, excluding the palpal



Mouthparts of *Polyaspis berlesei*, female.

Figure 7, Chelicera. Figure 8, Ventral view of gnathosoma with chelicerae removed. Figure 9, Tectum.

coxae ; with tibiae and tarsi insensibly fused ; forked seta of tarsus with two subequal tines ; trochanter with two large, spiny setae ventrally. Proximal hypostomal setae very long, simple, reaching to distal margin of palpal genu; median hypostomal setae short, spiny, reaching only slightly beyond anterior margin of hypostome ; distal hypostomal setae simple, less than one-half the length of proximal setae ; hypostomal processes long, slender, with fine setules distally, reaching distal margin of palpal genu. Corniculi extremely long, blade-like, heavily sclerotized, reaching to base of forked seta on palpal tibia-tarsus. Salivary styli long, simple, needle-like, reaching beyond distal margin of palpal genu. Epipharynx long, tongue-like, covered with long, fine setules. Hypo-pharyngeal styli well-developed, with serrate margins distally; extending to middle of palpal femur. Chelicerae (Fig. 7) long, with seta dorsally at base of fixed digit ; digits large, strong, subequal, each with recurved tip and one tooth distally; fixed digit with a pocket receiving tip of movable digit and an indentation opposite the tooth of movable digit. Tectum (Fig. 9) with short, strong, spinose processes laterally and a

long, tongue-like medial process, sparsely covered with small, strong teeth.

Legs. Legs slightly shorter than width of body, rough, pitted, with fimbriate growths. Legs in order from longest to shortest—I, II, IV and III. With short leaf-like setae, except for several long, simple setae at distal ends of tarsi and several specialized setae on tarsus I. Coxae I, II and III with two setae ventrally, coxa IV with one ; tip of tarsus I without pretarsus, but with clump of sensory setae and a long, tactile seta. Pretarsi on legs II, III and IV; with long, basal portion **and** a pair of stout, recurved claws ; caruncle complex, with conical projection ventrally between claws, tulip-shaped cushion dorsally, and a pair of retractable, drop-shaped structures distally.

Type specimens. The holotype female, one of the three specimens from Egypt ; and two paratype females, one from Egypt and one from Portugal, are deposited in the mite collection of the United States National Museum, Washington, D. C. The two remaining paratypes, females from Egypt and Portugal, are deposited in the collection of the Chicago Academy of Sciences.

Polyaspis berlesei may be distinguished from *P. patavinus* primarily on the basis of the chaetotaxy and other characteristics of the sternigenital region. The epigynial shield of *P. patavinus* lacks the anterior thickening and heavy sclerotization, so pronounced in *P. berlesei*. The metasternal shields and setae of *P. patavinus* are located at the posterior corners of the epigynial shield and the pseudosternal setae are at the anterior corners ; the pseudosternals are much closer to sternal setae III than to the metasternals ; the perigenital rim bears only two pairs of setae, the pseudosternals and setae III ; the distance between sternal setae I and II is only one and one-half times that between II and III ; the distance between setae I is approximately one-half that between setae III ; and setae II are farther apart than I, but closer together than III.

In *P. berlesei* the pseudosternal setae are on the posterolateral extensions of the rim, approximately one-third the length of the epigynial shield behind the anterior margin of the epigynial shield. They are approximately equidistant between setae III and the metasternals, which flank the lateral margins of the epigynial shield approximately one-third the length of that shield anterior to its posterior margin. The perigenital rim bears setae II in addition to setae III and the pseudosternals. The distance between setae I and II is more than twice that between II and III; setae I are almost as far apart as setae III ; and the distance between setae II is only one-half that between I or III.

Polyaspis berlesei is probably more closely related to *P. platensis*

Berlese than to *P. patavinus*. However, Berlese's description (1917) of *P. platensis*, an Argentine species, is quite inadequate by modern standards and was unaccompanied by figures. Berlese (1911) described another form, *P. australis*, in the genus *Polyaspis*, but this species from Australia and Java was based entirely on nymphal specimens. In 1914, Banks described *Polyaspis lamellipes* from Cedar Point, Ohio. His description was very brief and general and could be applied to any of the Polyaspidae or possibly to the genus *Polyaspinus* Berlese, of the Trachytidae. He figured only the tips of the cheliceral digits and leg I. The chelicera appears to be typically polyaspid, but leg I appears to be provided with claws, which are lacking in the Polyaspidae, but present in all known Trachytidae. A thorough study of the holotype specimen of this species must be undertaken before its proper taxonomic position can be determined.

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